



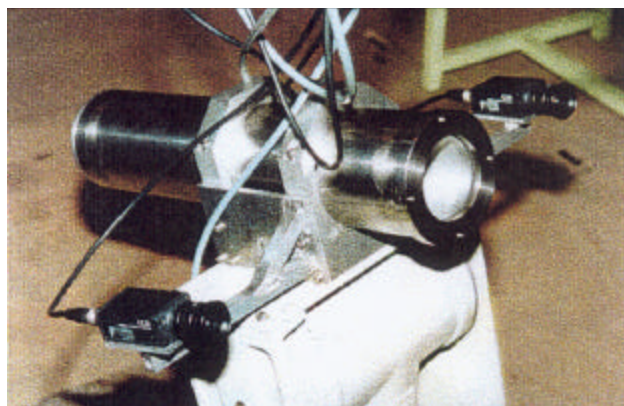
# Technology Deployment Fact Sheet

## *3-D Gamma Imaging*

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### SUMMARY

The Cogema Engineering 3-D Gamma Imaging system was deployed in the 221-U Facility in late September 1998. The system completed partial imaging of cell 28. The purpose of the deployment was to produce models that represent gamma radiation emitting sources in three dimensions. This information is to be used for project planning purposes for future characterization activities and as characterization information for input to evaluation of final disposition alternatives for the facility.



### INNOVATIVE TECHNOLOGY DESCRIPTION

3-D Gamma Imaging provides precise information on the quantity and location of gamma radiation emitting sources. A three-dimensional model superimposed with gamma images can be developed by obtaining sufficient gamma images and corresponding visual images and then applying photogrammetric analysis.

Gamma images are obtained using an ALADIN camera system visual images are obtained with video camera systems. The video images are integrated with the gamma images in producing two-dimensional images that can be used to develop three-dimensional models of the gamma distribution.

### BASELINE TECHNOLOGY DESCRIPTION

The standard methodology for determining the extent of general area radiation fields consists of a radiological control technician (RCT) manually using a gamma sensitive detector, typically a RO-2 or RO-7 probe.

### DEPLOYMENT DESCRIPTION

Cell 28 cover blocks were removed. Gamma and visual images were obtained using the 3-D Gamma Imaging system suspended over cell 28 by the facility crane. Delivery of final deployment results is still pending.

The following issues and limitations were experienced during deployment. Sensitivity of the Cogema 3-D Gamma Imaging system was not sufficient to complete work on the canyon deck. Other factors that limited the success of the deployment included the functionality of the pan/tilt mechanism and electromagnetic interferences. The pan/tilt mechanism was not configured to obtain complete coverage of the cell. An unknown source of electromagnetic interference prevented imaging in certain camera orientations.

### DETAILS OF BENEFITS

Final results and reporting of the deployment are pending at the time of this publication. The 3-D Gamma Imaging system will apparently produce models that represent gamma radiation emissions in three dimensions when gamma emissions exceed 1R/hr at a distance of 10 feet.

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